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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,511	11/26/2003	Mauri Saksio	60279.00071	6152

32294 7590 02/04/2009

SQUIRE, SANDERS & DEMPSEY L.L.P.
8000 TOWERS CRESCENT DRIVE
14TH FLOOR
VIENNA, VA 22182-6212

EXAMINER	
LOO, JUVENA W	

ART UNIT	PAPER NUMBER
2416	

MAIL DATE	DELIVERY MODE
02/04/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/721,511	SAKSIO, MAURI	
	Examiner	Art Unit	
	JUVENA LOO	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 October 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-14 and 16-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-14, and 16-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. In view of the Pre-Appeal Brief filed on August 18, 2008, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 5, 9, 16, and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the claimed limitation states "*the dependent down-link leading to a lower stage tree element in the tree structure and* ***being an only link*** *from the intermediate tree element to the lower stage tree element in the tree structure*". However, as shown in Figure 1 of application, each immediate tree element contains more than one link to a lower stage tree element.

Regarding claim 1, the claimed limitation states "*wherein* ***the*** *redundant tree structured local area network*". It is not clear what the redundant tree structured local area network is referring to.

Regarding claim 5, the claimed limitation states "*wherein* ***the*** *redundant tree structured local area network*". It is not clear what the redundant tree structured local area network is referring to.

Regarding claim 9, the claimed limitation states "*the dependent down-link leading to a lower stage tree element in the tree structure and* ***being an only link*** *from the intermediate tree element to the lower stage tree element in the tree structure*".

However, as shown in Figure 1 of application, each immediate tree element contains more than one link to a lower stage tree element.

Regarding claim 16, the claimed limitation states "*the dependent down-link leading to a lower stage tree element in the tree structure and* ***being an only link*** *from the intermediate tree element to the lower stage tree element in the tree structure*". However, as shown in Figure 1 of application, each immediate tree element contains more than one link to a lower stage tree element.

Regarding claim 18, the claimed limitation states "*the dependent down-link leading to a lower stage tree element in the tree structure and* ***being an only link*** *from the intermediate tree element to the lower stage tree element in the tree structure*". However, as shown in Figure 1 of application, each immediate tree element contains more than one link to a lower stage tree element.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1 – 4, and 9 – 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dapp (US 7,213,265 B2) in view of Ptasinski et al. (US 7,197,548 B1).

Regarding claim 1, *a method comprising*:

monitoring in an intermediate tree element (Dapp: see Security policy manager devices…arbitrary configuration" in Abstract)*, the critical up-link being an only link from the intermediate tree element to an upper stage tree element in the tree structure* (Dapp: see Figures 2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18)*;*

wherein the redundant tree structured local area network comprises at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage (Dapp: see Figures 2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18).

However, Dapp does not explicitly disclose the features:

monitoring in an intermediate tree element the state of a critical up-link;

detecting, in the intermediate tree element, a link-down state in the critical up-link; *and*

setting, in the intermediate tree element, a dependent down-link in a link-down state, if said critical up-link is detected to be in the link-down state, the dependent down-link leading to a lower stage tree element in the tree structure and being an only link from the intermediate tree element to the lower state tree element in the tree structure.

Ptasinski et al. disclose a method and apparatus for verifying connectivity between network nodes comprising the features:

monitoring in an intermediate tree element the state of a critical up-link (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30);

detecting, in the intermediate tree element, a link-down state in the critical up-link (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30); *and*

setting, in the intermediate tree element, a dependent down-link in a link-down state, if said critical up-link is detected to be in the link-down state, the dependent down-link leading to a lower stage tree element in the tree structure and being an only link from the intermediate tree element to the lower state tree element in the tree structure (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 –

7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30; Dapp: see Figures 2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18; Dapp discloses the tree structure).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Dapp by using the features, as taught by Ptasinski et al, in order to detect state of node/link in the network (Ptasinski: see Abstract).

Regarding claim 2, *further comprising:*

specifying the up-link of a network element as a critical up-link, if the failure of said link affects the data flow of a down-link of said network element (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30; Dapp: see Figures 2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18; Dapp discloses the tree structure).

Regarding claim 3, *further comprising*:

specifying the link of a network element as a dependent down-link, if there is a critical up-link between said down-link and a next network element (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30; Dapp: see Figures 2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18; Dapp discloses the tree structure).

Regarding claim 4, *wherein the monitoring of the state of a critical up-link is accomplished by monitoring the quality of the data flow on the link* (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30; Dapp: see Figures 2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18; Dapp discloses the tree structure).

Regarding claim 9, *an apparatus* (Ptasinski: see Figures 1 and 2), *comprising*:

a controller (Ptasinski: see Figures 1 and 2) *configured to*

monitor the state of a critical up-link (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30),

detect a link-down state in the critical up-link (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30).

However, Ptasinski et al. does not explicitly disclose the features:

the critical up-link being an only link to an upper stage tree element in the tree structure of a redundant tree structured local area network comprising at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises to at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage;

set a dependent down-link in a link-down state, the dependent down-link leading to a lower stage tree element in the tree structure and being an only link to the lower stage tree element in the tree structure.

Dapp discloses a method to provide fault and potential attack in a network comprising the features:

the critical up-link being an only link to an upper stage tree element in the tree structure of a redundant tree structured local area network comprising at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises to at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage (Dapp: see Security policy manager devices…arbitrary configuration" in Abstract; see also Figures 2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18)..

set a dependent down-link in a link-down state, the dependent down-link leading to a lower stage tree element in the tree structure and being an only link to the lower stage tree element in the tree structure (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30; Dapp: see Security policy manager devices…arbitrary configuration" in Abstract; see also Figures 2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Dapp by using the features, as taught by Ptasinski et al, in order to detect state of node/link in the network (Ptasinski: see Abstract).

Regarding claim 10, *an apparatus*, *comprising*:

a physical layer configured to monitor the physical state of said up-link devices (Ptasinski: see Figures 1 and 2; see also "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30); *and*

a media access controller configured to change the state of the down-link (Ptasinski: see Figures 1 and 2; see also "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30).

Regarding claim 11, *wherein the up-link of the apparatus is a critical up-link, if the failure of said link affects the data flow of a down-link of said apparatus* (Dapp: see Security policy manager devices…arbitrary configuration" in Abstract; see also Figures 2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18).

Regarding claim 12, *wherein link of the apparatus is a dependent down-link, if there is a critical up-link between said down-link and a next network element* (Dapp: see Security policy manager devices…arbitrary configuration" in Abstract; see also Figures

2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18).

6. Claims 5, 7, 8, 14, 16, 17, 18, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dapp (US 7,213,265 B2) in view of Ptasinski et al. (US 7,197,548 B1) and Chow et al. (US 2003/0031124 A1).

Regarding claim 5, *a method comprising*:

monitoring, in a host device, an active up-link in a host device leading to an intermediate tree element in a first tree (Dapp: see Security policy manager devices…arbitrary configuration" in Abstract; see also Figures 2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18); *and*

wherein the redundant tree structured local area network comprises at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage (Dapp: see Figures 2 and 4; see also "It should be noted

that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18).

However, Dapp does not explicitly disclose the features:

monitoring the state of an active up-link in a host device;

detecting, in the host device, a link-down state in the active up-link;

notifying host software about the link-down state;

starting a recovery process in the host device by changing the failed active up-link to a redundant up-link leading to an upper stage intermediate tree element in a second tree

Ptasinski et al. disclose a method and apparatus for verifying connectivity between network nodes comprising the features:

monitoring the state of an active up-link in a host device (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30)*;*

detecting, in the host device, a link-down state in the active up-link (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30),

notifying host software about the link-down state (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30).

Chow et al. discloses a communication system comprising the feature:

starting a recovery process in the host device by changing the failed active up-link to a redundant up-link leading to an upper stage intermediate tree element in a second tree (Chow: see Figure 4 and "Still referring to FIG. 4…destination node 231" in page 4, sections 0044 – 0048; Dapp: see Figures 2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18; Chow discloses the source/host is starting the recovery process and Dapp discloses the use of redundant link for recovery).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Dapp by using the features, as taught by Ptasinski et al, in order to detect state of node/link in the network (Ptasinski: see Abstract).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Dapp by using the features, as taught by Chow et al, in order to provide fault recovery (Chow: see Abstract).

Regarding claim 7, *wherein the recovery process comprises:*

checking the status of a redundant up-link (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30)*, and*

if said up-link is in the link down state, and transferring said host to a predetermined default mode operation (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30).

Regarding claim 8, *wherein the redundant up-link is a doubling up-link for the active up-link* (Dapp: see Figures 2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18).

Regarding claim 14, *comprising*:

a controller (Ptasinski: see Figures 1 and 2) *configured to*

monitor the state of an active up-link (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30),

detect a link-down state in the active up-link (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30);

notify host software about the link-down state (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30).

However, Ptasinski et al. does not explicitly disclose the features:

leading to an intermediate tree element in a first tree of a redundant tree structured local area network comprising at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage,

start a recovery process by changing the failed active up-link to a redundant up-link leading to an upper stage intermediate tree element in a second tree.

Dapp discloses a method to provide fault and potential attack in a network comprising the features:

leading to an intermediate tree element in a first tree of a redundant tree structured local area network comprising at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage (Dapp: see Security policy manager devices…arbitrary configuration" in Abstract; see also Figures 2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18).

Chow et al. discloses a communication system comprising the feature:

start a recovery process by changing the failed active up-link to a redundant up-link leading to an upper stage intermediate tree element in a second tree (Chow: see Figure 4 and "Still referring to FIG. 4…destination node 231" in page 4, sections 0044 – 0048; Dapp: see Figures 2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18; Chow discloses the source/host is starting the recovery process and Dapp discloses the use of redundant link for recovery).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Dapp by using the features, as taught by Ptasinski et al, in order to detect state of node/link in the network (Ptasinski: see Abstract).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Dapp by using the features, as taught by Chow et al, in order to provide fault recovery (Chow: see Abstract).

Regarding claim 16, *an apparatus* (Ptasinski: see Figures 1 and 2), *comprising*:

*monitoring means for monitoring the state of a critical up-link (*Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30)*,*

detecting means for detecting a link-down state in the critical up-link (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30).

However, Ptasinski et al. does not explicitly disclose the features:

the critical up-link being an only link to an upper stage tree element in the tree structure of a redundant tree structured local area network comprising at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises at least one intermediate stage and wherein an intermediate stage tree

element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage;

setting means for setting a dependent down-link in a link-down state, the dependent down-link leading to a lower stage tree element in the tree structure and being an only link to the lower stage tree element in the tree structure.

Dapp discloses a method to provide fault and potential attack in a network comprising the features:

the critical up-link being an only link to an upper stage tree element in the tree structure of a redundant tree structured local area network comprising at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage (Dapp: see Security policy manager devices…arbitrary configuration" in Abstract; see also Figures 2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18);

setting means for setting a dependent down-link in a link-down state, the dependent down-link leading to a lower stage tree element in the tree structure and being an only link to the lower stage tree element in the tree structure (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An

embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30; Dapp: see Security policy manager devices…arbitrary configuration" in Abstract; see also Figures 2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18)..

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Dapp by using the features, as taught by Ptasinski et al, in order to detect state of node/link in the network (Ptasinski: see Abstract).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Dapp by using the features, as taught by Chow et al, in order to provide fault recovery (Chow: see Abstract).

Regarding claim 17, *an apparatus* (Ptasinski: see Figures 1 and 2), *comprising*:

monitoring means for monitoring the state of an active up-link (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30),

detecting means for detecting a link-down state in the active up-link (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30);

notifying means for notifying host software about the link-down state (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30).

However, Ptasinski et al. does not explicitly disclose the features:

leading to an intermediate tree element in a first tree of a redundant tree structured local area network comprising at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage;

starting means for starting a recovery process by changing the failed active up-link to a redundant up-link leading to an upper stage intermediate tree element in a second tree if said active link is in the link down state.

Dapp discloses a method to provide fault and potential attack in a network comprising the features:

leading to an intermediate tree element in a first tree of a redundant tree structured local area network comprising at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to

an intermediate stage tree element of another tree at the same stage Dapp: see Security policy manager devices…arbitrary configuration" in Abstract; see also Figures 2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18).

Chow et al. discloses a communication system comprising the feature:

starting means for starting a recovery process by changing the failed active up-link to a redundant up-link leading to an upper stage intermediate tree element in a second tree if said active link is in the link down state (Chow: see Figure 4 and "Still referring to FIG. 4…destination node 231" in page 4, sections 0044 – 0048; Dapp: see Figures 2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18; Chow discloses the source/host is starting the recovery process and Dapp discloses the use of redundant link for recovery).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Dapp by using the features, as taught by Ptasinski et al, in order to detect state of node/link in the network (Ptasinski: see Abstract).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Dapp by using the features, as taught by Chow et al, in order to provide fault recovery (Chow: see Abstract).

Regarding claim 18, *a system* (Dapp: see Figures 2 and 4) *comprising*:

a redundant tree structured local area net-work comprising at least two separate subtrees ending to a set of same host devices, wherein each subtree comprises at least one intermediate stage and wherein an intermediate stage tree element of one tree is not directly connected to an intermediate stage tree element of another tree at the same stage (Dapp: see Figures 2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18);

the critical up-link being an only link from the intermediate tree element to an upper stage tree element in the tree structure (Dapp: see Figures 2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18)*;*

However, Dapp does not explicitly disclose the features:

at least one apparatus comprising a controller configured

to monitor the state of a critical up-link,

to detect a link-down state in the critical up-link;

at least one host device comprising a controller configured

to monitor the state of an active up-link in a host device leading to an intermediate tree element in a first tree,

to detect a link-down state in the active up-link,

to notify host software about the link-down state, and

to start a recovery process by changing tile failed active up-link to a redundant up-link leading to an upper stage intermediate tree element in a second tree.

Ptasinski et al. disclose a method and apparatus for verifying connectivity between network nodes comprising the features:

at least one apparatus comprising a controller (Ptasinski: see Figures 2 and 4) *configured*

to monitor the state of a critical up-link (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30),

to detect a link-down state in the critical up-link, and to set a dependent down-link in a link-down state (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30);

at least one host device comprising a controller (Ptasinski: see Figures 2 and 4) *configured*

to monitor the state of an active up-link in a host device leading to an intermediate tree element in a first tree (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30; Dapp: see Figures 2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18),

to detect a link-down state in the active up-link (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30),

to notify host software about the link-down state (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30).

Chow et al. discloses a communication system comprising the feature:

to start a recovery process by changing tile failed active up-link to a redundant up-link leading to an upper stage intermediate tree element in a second tree (Chow: see

Figure 4 and "Still referring to FIG. 4…destination node 231" in page 4, sections 0044 – 0048; Dapp: see Figures 2 and 4; see also "It should be noted that…or any desired portion thereof" in column 7, lines 5 – 47; see also "Referring now to FIG. 4…chain line 310" in column 8, line 56 through column 9, line 18; Chow discloses the source/host is starting the recovery process and Dapp discloses the use of redundant link for recovery).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Dapp by using the features, as taught by Ptasinski et al, in order to detect state of node/link in the network (Ptasinski: see Abstract).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Dapp by using the features, as taught by Chow et al, in order to provide fault recovery (Chow: see Abstract).

Regarding claim 19, *further comprising monitoring the state of a critical up-link by monitoring the quality of the data flow on the link* (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30).

Regarding claim 20, *wherein the controller is further configured to:*

check the status of a redundant up-link link (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30), *and*

if said up-link is in the link down state, and transfer said host to a predetermined default mode operation link (Ptasinski: see "For each node…frame is transmitted" in Abstract; see also Figures 4 – 7; see also "An embodiment of the present…assigned unique node identifiers" in column 5, line 52 through column 11, line 30).

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dapp (US 7,213,265 B2) in view of Ptasinski et al. (US 7,197,548 B1) and further in view of Lamport et al. (5,138,615).

Dapp and Ptasinski disclose all the limitations as in paragraphs 4 above. Dapp and Ptasinski do not explicitly disclose the feature: regarding claim 13, *wherein said monitoring is performed with an Ethernet controller.*

Lamport discloses a mesh connected local area network provides automatic packet switching and routing between host computes comprising:

Regarding claim 13, wherein said monitoring is performed with an Ethernet controller (Lamport: column 8, lines 57 – 61; the switches and hosts monitor the states of links in the Ethernet network).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Dapp with Ptasinski by using the features, as taught by Lamport et al, in order to provide system using Ethernet (Lamport: column 8, lines 57 – 61; the switches and hosts monitor the states of links in the Ethernet network).

Response to Arguments

8. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUVENA LOO whose telephone number is (571)270-1974. The examiner can normally be reached on Monday - Friday: 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JUVENA LOO/
Examiner
Art Unit 2416
February 02, 2009

/Kwang B. Yao/
Supervisory Patent Examiner, Art Unit 2416